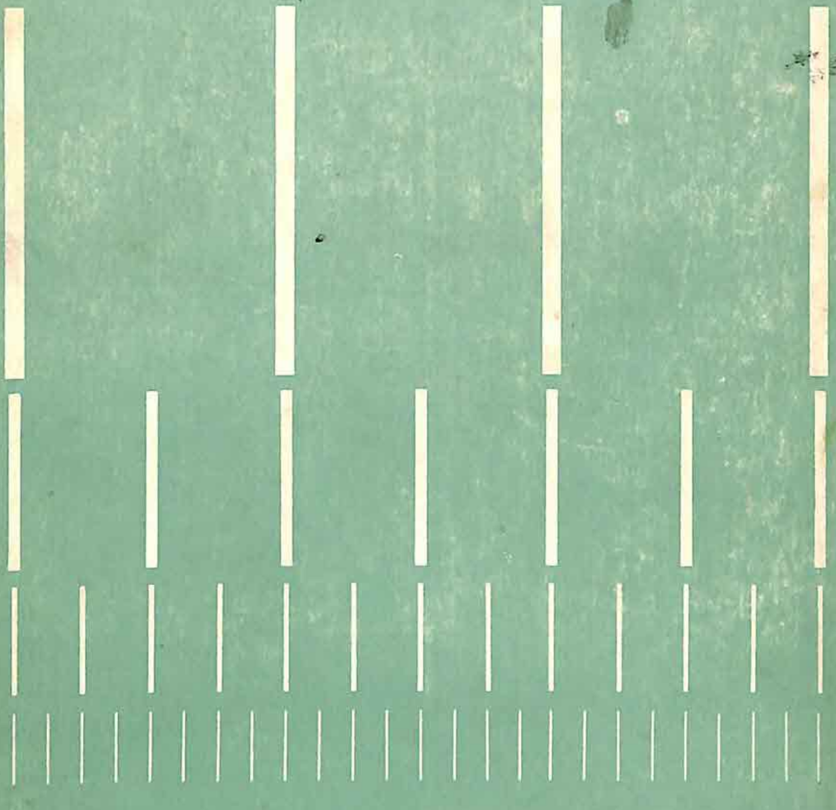
Fundamentals of educational planning 6

The costing of educational plans

J. Vaizey
J. D. Chesswas



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Fundamentals of educational planning

The booklets in this series are written primarily for two groups: those engaged in—or preparing for—educational planning and administration, especially in developing countries; and others, less specialized, such as senior government officials and civic leaders, who seek a more general understanding of educational planning and of how it can be of help to over-all national development. They are devised to be of use either for self-study or in formal training programmes.

The modern conception of educational planning has attracted specialists from many disciplines. Each of them tends to see planning rather differently. The purpose of some of the booklets is to help these people explain their particular points of view to one another and to the younger men and women who are being trained to replace them some day. But behind this diversity there is a new and growing unity. Specialists and administrators in developing countries are coming to accept certain basic principles and practices that owe something to the separate disciplines but are yet a unique contribution to knowledge by a body of pioneers who have had to attack together educational problems more urgent and difficult than any the world had ever known. So other booklets in the series represent this common experience, and provide in short compass some of the best available ideas and experience concerning selected aspects of educational planning.

Since readers will vary so widely in their backgrounds, the authors have been given the difficult task of introducing their subjects from the beginning, explaining technical terms that may be commonplace to some but a mystery to others, and yet adhering to scholarly standards and never writing down to their readers, who, except in some particular speciality, are in no sense unsophisticated. This approach has the advantage that it makes the booklets intelligible to the general reader.

Although the series, under the general editorship of Dr. C. E. Beeby, has been planned on a definite pattern, no attempt has been made to avoid differences, or even contradictions, in the views expressed by the authors. It would be premature, in the Institute's view, to lay down a neat and tidy official doctrine in this new and rapidly evolving field of knowledge and practice. Thus, while the views are the responsibility of the authors, and may not always be shared by Unesco or the Institute, they are believed to warrant attention in the international market-place of ideas. In short, this seems the appropriate moment to make visible a cross-section of the opinions of authorities whose combined experience covers many disciplines and a high proportion of the countries of the world.

Foreword

John Vaizey is professor of economics at Brunel University, London, Director of the Acton Society Trust, and a member of the Institute's Council of Consultant Fellows. He has taken an active part in many conferences and meetings on educational planning organized by Unesco and OECD, and has been a member of Unesco missions to developing countries. He is a member of the United Kingdom National Commission for Unesco. He is author of a large number of books and papers, and his 'The Costs of Education' and 'The Economics of Education' are standard works on the subjects.

John Chesswas spent nineteen years in the education service of Uganda; he spent a long time as Provincial Education Officer, Buganda, and finished as Officer in Charge of the Educational Planning Unit within the Ministry of Education. He is now an associate staff member of the Institute, and recently took part in one of its missions to Africa.

These writers represent the two streams of experience that have merged to create modern educational planning. The most prolific writers in this field, understandably, are men whose home base is a university or other institution in a developed country. Many of them have had extensive experience as advisers, consultants, or research workers in a variety of places, but, with few exceptions, it is a different group of men who have struggled, over a long period of years, with the day-to-day problems of administering and planning educational systems in developing countries.

Obviously, both groups have a great deal to offer to the theory and practice of educational planning, and to the training of a new generation of planners whose experience should eventually be less patchy than that of the pioneers. This is the first booklet in the series to be published in what might be termed a 'double-decker' form, in order to present both points of view on a specific problem within two covers. The first essay is a generalized treatment of costing by an authority whose experience specially fits him for the task; the second is a description of the costing of plans as it actually occurred in a developing country. It is not, be it noted, simply a matter of confronting the 'theorist' and the 'practical man'. Anyone reading John Vaizey's contribution must sense the wealth of practical experience that lies behind it, and John Chesswas is no stranger to the theory of planning. What are being brought face to face here are two different kinds of experience.

Nor is the second part designed to be, in the text-book sense, an illustration of the theories or generalized statements made in the first. That would have involved the trimming or tailoring of one part or the other to ensure a proper 'fit', which would have thwarted the whole purpose of the publication. Mr. Vaizey's article is no high-flown theorizing but a generalized guide to practice, but Mr. Chesswas makes it clear in his opening paragraph that, while practice conformed to the general lines of the theory, there were many respects in which it diverged. In that particular setting, some problems in Part I did not arise; others, as he frankly states, 'were simply never thought of', and sometimes, when facts were lacking, intelligent guessing took the place of calculation. Mr. Vaizey would have expected this to be so, and Mr. Chesswas makes no claim that the particular bit of costing he describes is an ideal model. He himself suggests ways in which it might have been improved, and also shows how the costing was simplified (and thereby limited) by 'making the assumption that the education system would remain basically the same as that which existed'. The virtue of this contribution is that it is a straightforward account of how an able and experienced ministry of education in a developing country did in fact cost its plans.

It seemed to the International Institute for Educational Planning that the two statements would both gain from being presented side by side. The booklet is offered primarily for the training of planners, but, since most of us still stand in need of training in one branch or other of educational planning, it may be of interest to the seasoned as well as to the young.

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Part One

by John Vaizey

The importance of costing

An essential tool for an administrator who is running an educational system is a knowledge of the costs of alternative courses of action. Any person who takes decisions about extending or establishing an educational system has to decide whether to add to existing facilities, to complement them, or to substitute something different from what he already has. He may build a new secondary school on an existing model; he may add a recreational centre to his school system; or he may replace a series of scattered village schools by a central secondary school. He will want to know the educational and social benefits from these actions; but essential to his task is an understanding of the costs of doing one thing rather than another. There is no administrator in the world who has more resources than he can use; and when resources are limited, choices have to be made. It is essential that these choices are based on an accurate assessment of the cost situation.

An understanding of the principles of costing educational programmes, therefore, underlies the major part of the task which the educational administrator and planner has to undertake. By an analysis of the problems involved in costing, and an understanding of the techniques which have been developed for the best methods of costing, the formulation and implementation of educational plans will be substantially improved. This part of the booklet is concerned primarily with a substantial number of practical problems which the educational planner will face.

In order to understand these problems, however, a certain amount of theoretical formulation is necessary. The theory, however, is kept to a minimum because, in educational planning in the developing nations, highfalutin approaches to problems are often not suitable —the data with which the administrator has to work are crude and the methods he has to use are necessarily rough and ready. Consequently the formulations presented here are simple and not complicated, and the suggestions that are made for meeting the problems are those which will be easily available and may be used in any country.

In any short period in which educational planning is being undertaken, the greater part of educational costs are fixed. In the immediate future—in a year or so—the range of choice which the policy-maker has before him is necessarily very limited. He has to pay for the upkeep of his buildings, he has to pay the salaries of his teachers, he has to pay for school transport, he has to pay for educational materials and for innumerable other incidentals which running an educational system involves. He will be lucky if more than 5 per cent of his annual budget is available for any new kind of departure. Of course, the longer ahead he looks, the greater the range of choice which he has available. Over a period of several years he can hire more or fewer teachers, he can use to a greater or lesser extent new techniques like television, he can build new buildings of different types for a multiplicity of purposes and he can design different kinds of school systems. And from the point of view of the nation also, the allocation of resources as between education on the one hand and, say, health and welfare on the other becomes far more a matter of choice. We shall indicate later on the limits and constraints which are imposed by the imperatives of social and economic development on the choices which are available. But here the point which is being made is a simple one that the further ahead an administrator looks, the greater is his range of choice.

Perhaps, indeed, this idea can be stood on its head. Whenever an administrator makes a decision, however trivial, he is in fact limiting the number of choices that he can make in the future because he will be committing some of his resources to a given path of development; a policy once inaugurated is hard to reverse; commitments entered into cannot easily be got out of. It therefore follows that the educational policy-maker should have a long-term strategy in mind whenever he takes a decision which involves in any significant respect the long-term commitment of resources. It is the aim here to try to present some of the problems that face an administrator and a planner when he is trying to devise a long-term strategy, and to suggest to him the use of tools which will enable him to make wise choices.

How to cost—choosing the basis

First of all, then, how does one cost an educational programme? The main devices may be, and probably are, familiar. A unit is chosen, either the number of teachers or the number of pupils or perhaps the number of schools, as a basis for costing. On this basis, a range of data is provided—that is to say the cost of providing the given unit is derived from experience, and then the national unit cost is multiplied by the total number of units in the system to derive the total cost. Basically, this is the device which is used by governments and businesses throughout the world for their costing procedures.

It will immediately be obvious that there are a number of major problems which the administrator or planner has to think carefully about before he adopts his unit. Do costs vary with the number of pupils? To some extent they do. If maintenance grants are given to pupils or fees are paid to private schools on a per pupil basis, then obviously if the number of pupils increases so will the number of grants. If the school administration pays for the books used by the pupils and each pupil has a given number of books, then obviously expenditure on books will also rise with the number of pupils. But the administrator will immediately be aware that many educational costs are not associated with the number of pupils. They are associated rather with the number of teachers. (Incidentally, the definition of a 'teacher' is often not as simple as it seems at first sight.) If the number of teachers increases then the major part of educational outlay—which is teachers' salaries and incidental associated expenses like superannuation—will also increase. Thus it may well be that the item to look at most carefully, when costing is being undertaken, is the number of teachers and their salaries. No one unit, however, is suitable for all purposes. For costs other than teachers' salaries the unit to look at may well be the number of square metres of building space, because the cost of heating and cleaning and interest charges are associated more with the number and size of educational buildings than with the number of pupils or the number of teachers. Of course there is a link between the number of pupils, the number of teachers and the number of buildings. Roughly, for educational costing purposes, it is fairly safe to assume that the crucial variable is the number of teachers. It would be unsafe, however, to assume that this is the only variable. The safest procedure is to divide educational costs into three parts—those related to pupils, those related to teachers and those related to buildings—and to adopt units for each. In a fairly steady situation where things are not altering much, a composite unit, including all three, could be adopted; but most educational planners do not find themselves in steady situations. Their craft is embarked on stormy seas where change is the order of the day.

What is the scope of educational costs?

1) Having decided what our units are to be — and we shall come back later to them in greater detail — we want to find out what the total costs of an educational programme are likely to be. To know where we are going, we have to know where we are now. What is spent at present? To know that we have to decide whether or not the figures which commonly appear upon the educational vote are all the costs that have to be considered. 2) First let us take current outlays. If we look at these carefully it is fairly obvious that the main items which cost most—teachers' salaries, the upkeep of buildings, the incidental cost of furniture, books, stationery, etc.—can be identified. But are the figures in these budget tables appropriate for our purpose? It may be difficult to assign expenditure to the appropriate year because there may be a difference, for instance, between the budgetary year and the school year. (Things like this, which may seem minor points, actually make costing procedures extremely complicated.) Again, there may be differences in the dates at which supplies are bought and supplies are used. This may make a difference to costing, because the valuation of stocks in a period of rising or falling prices gives accountants nervous breakdowns. But taking one year with another, such problems can eventually be overcome by adopting a set of sensible rules and sticking to them. On the other hand there are other difficulties which are not so easily over-

come. The budgetary authorities may be interested only in those costs which fall directly on them, yet in many school systems some parts of educational costs are borne by the central government and other parts of the costs by local communities. In drawing up an educational plan it would therefore be necessary to identify expenditure undertaken both by central and by local government and to add them up. This may not be such a simple task because the regulations under which grants are paid by central governments to local governments may be exceptionally complicated. In Northern Ireland, for example, until recently some grants were paid according to the number of pupils, others to supplement teachers' salaries, and others to meet certain other costs. These grants would appear under several headings in the accounts, and to assign them to any particular sector of education would be a very complicated task. Double counting could easily occur; both the grants paid by the central government and those received by the local authorities would appear as disbursements, and they would have to be 'netted out'. Then there may well be private receipts in the educational system which may be of considerable importance. These private receipts may be school fees paid by families, or fees paid by private corporations for the industrial or other training of their employees. There may be payments by parents or pupils for books, special lessons, meals, accommodation and other purposes which at all times ought to be included in total disbursements, but which may in fact be paid through separate accounts. There are certain types of services which may be provided to the educational system free by other departments. For example, if there is an extensive national education television service, it may not appear on the education vote, but it may appear instead under, say, the broadcasting corporation vote, or the Ministry of Cultural Affairs. Yet, properly speaking, it is a cost of education. In addition, large parts of the educational system proper may not appear under the education vote at all, but under other votes. For example, most countries have systems of agricultural extension work which are financed by the Department of Agriculture. Education of soldiers and soldiers' families is often borne under the defence vote, and the education provided for nurses and doctors may well appear under the medical vote. If the true cost of an educational plan is to be assessed, then two things are necessary. All these expenditures have to be identified and brought together in one major central table, and then consistent definitions have to be adopted of what is to be included and what is to be excluded from education. At the same time there may be a number of items appearing under the education vote which have nothing directly to do with education. For instance, in some countries, museums, art galleries and a number of other extraneous matters (including, for example, the national broadcasting system) may be the responsibility of the Minister of Education. These services are not necessarily more related to education than they are to any other form of social activity. In all probability these costs should, therefore, be subtracted from the grand central table.

At this stage we have a grand national table of educational expenditure by all authorities—public and private—which we think ought to be included in education. We have tried to assign expenditures to the year in which they actually took place. We have sought to avoid double counting. We have sought to exclude non-educational items. This is the basis for our global projection of educational costs. So far as possible we should try to divide the expenditure under different headings (teachers' salaries, other wages, maintenance of buildings, educational materials, etc.) and by different levels (primary, secondary and higher, for example). These will be basic exercises that we can go into later.

Some internal problems—especially capital

Before that, however, there may well be a number of purely internal accounting problems which have to be solved, for example, the repayment and servicing of loans which have been raised for the building of schools. These should be subtracted from current costs if calculations are also to be made of real capital outlays, otherwise there would be a double counting. The point is that capital yields its services over a long period. The 'services' of a loan represents the yields to the community of the current age of the buildings. But if we are interested in the burden of the capital expenditure, we are also interested in the total spent this year on school building and equipment. If we include the one in our accounts, we should exclude the other.

The division between capital and current expenditure is, of course, arbitrary and depends on the accounting conventions in use at the time and place in question. (A book bought for a library may be classed as capital expenditure whereas a book bought for use in a class-room would be current expenditure.) All of the problems which have been described as being relevant to the current costing of educational programmes arise also on the capital side. The identification of capital outlays is frequently an exceptionally complex and difficult task, particularly if there is a large system of voluntary and independent schools, because often records of this expenditure are only kept centrally in a very sketchy way. It may well be possible to reconstruct the total of capital outlay on private education by using the unit amounts which are known to be involved in the public system and multiplying them by the number of capital places known to have been provided in the independent sector, but of course the standard of cost may be very different in the two cases.

Assigning costs

Let us now assume that on the current and capital side we have accumulated as much evidence as possible of what the actual outlays are at present, or were in a recent year. We have excluded irrelevant expenditure and included as much relevant expenditure as we can think of. The next problem is to assign each of the large global totals to particular parts of the educational system, because what we want to have is an idea of the unit cost of education at different levels, and different types of education. For example, if the education of boys and girls is conducted in separate schools, it is useful to know whether we spend more money on boys than on girls. We will want to know whether the education of 12-year-olds is two, three or four times as expensive as the education of 6-year-olds. To discover the answer to this sort of question is frequently a task of great difficulty as the expenditure is not necessarily broken down and recorded conveniently either by age group or by school. For planning purposes the usual technique for making judgements is to try to identify those costs associated with a particular age group and to construct a kind of mock accounting system for the education of a particular group of children.

How are we to do this? Frequently, a number of schools may be chosen as a sample to give us some idea of the expenditures involved and, provided that due care is taken to see that they are not too untypical of the system as a whole, this can give an indication of expenditures which is not terribly inaccurate. After all, let us remember that the purpose of this exercise is to discover what the trends of cost are likely to be, and as long as our errors are all in the same direction it does not really matter if our unit costs are a little wrong. If the errors begin to grow, of course, the figures will be useless. When changes take place, the degree of error will change. For example, it may well be that the development of new kinds of school will involve different types of expenditure. It has been found in England and Wales that the new schools built in the last twenty years have been cheaper in capital costs, but have cost more to heat and light and clean than the older schools. (This is because the amount of space per pupil has increased compared to thirty or forty years ago.) Rather than seeking for exactly accurate data, it is things like this that have to be carefully watched if the costing of educational programmes is not to go hopelessly wrong.

The complexity of the abnormal

The illustrations which have been given refer largely to a conventional school system and, of course, the problem of devising unit costs becomes increasingly difficult the more we move away from the well-understood and accepted systems of ordinary school education of school children. The problems of costing programmes of technical training are very much more complex because, for example, in a factory where some training on the job is being given, it is difficult to decide whether at any point in time a man is being taught or is taking part in production. Is his wage a cost of production or a cost of training? There may be no formal part of the factory set aside for the training; people may be given training on machines which are used at other times for ordinary production. What, then, is the capital cost of training? The people who give the instruction may be for most of the time ordinary supervisors and foremen. What are the costs of training? The allocation of costs inside any productive enterprise is an exceptionally complicated process and comparing the costs with the unit costs of instruction given inside a technical college becomes a matter of considerable complexity.

Here, too, we get in an acute form a problem which inside the school system particularly affects secondary education. This could be presented as the system of the unit adopted for costing. In a primary school where the level of student wastage, especially in a more developed country, may be quite low, it may be convenient to take the student, or the student-year, as a unit of costing—'How much does it cost per year to educate a child?' But where there is wastage on a serious scale, as in technical education and secondary education throughout the world, and in primary education as well in some developing countries, it may be more appropriate to take costs per completed student (or per graduate) and this may completely change the comparative schedule of costs which has been derived from the raw data assembled. Some of the apparently cheaper forms of training may be revealed on this basis as the most expensive in terms of completed students.

International comparisons

Let us suppose, however, that we have solved, or at least coped with as best we may, the problems of identifying the units we are going to use for costing and collecting the data. We have made all our calculations. Where are we? Of course, many of the data which we put into our system of accounts will necessarily be rough and ready estimates. In many countries, the number of students is itself a somewhat vague concept and the idea of calculating expenditures on education in the often very large private sector is necessarily something which involves a great deal of estimation on the part of the planner ('estimation' is the word used by administrators for 'guess'). Now we want to know whether or not our costs seem reasonable compared with the costs in other education systems with which we are familiar. The game of international comparisons in all fields is becoming more popular than it used to be, and international comparisons provide a great deal of guidance to administrators in many fields of activity. Here we have to be exceptionally cautious. Our purpose in accumulating these data has been to estimate the real costs of education in terms of its true burden on the national economy. When we compare two countries, what we are interested in is to compare the real burden of education in both countries. But the tools that we have for making this comparison are necessarily limited. For example, we usually make comparisons in money terms and use the conventional rate of exchange. But in a world of monetary restrictions, such as we have, the rate of exchange itself is a highly artificial concept. Consequently, the reduction of all unit costs to dollar terms on the basis of the official exchange rate may considerably distort the true picture. In addition, in some countries teachers may be relatively well paid compared with other professions while in other countries they may be poorly paid. It would follow that the country that paid its teachers relatively well would appear to devote more of its resources to education than the country which paid its teachers comparatively poorly. In one sense this would be true because the teachers would get more of the national product for their own consumption. But in another sense it would be quite untrue, because whether or not the teachers were well paid, the children in each country would still get the same amount of teaching from the teachers. Consequently, for most purposes of comparisons we have to standardize the salaries of the teachers in the two countries. In other words, we have to calculate a special rate of exchange for teaching. This is a familiar economic device which has been used in a number of fields. (It has been developed particularly by Mr. Milton Gilbert and his collaborators at the Organisation for Economic Co-operation and Development.)

Deciding priorities—who does it?

Once we have assembled the data for costing a plan we then can use them to help decide priorities. Most priorities of a major kind would have been fixed on political or other grounds before the plan begins. Nevertheless, the choice of priorities will obviously be determined to a considerable extent by the cost of various policies and the accurate costing of possible projects will therefore play an important part in the process of choosing which projects to adopt. The costing of alternative programmes as accurately as possible over the longest possible period as a basis for reasonable comparisons is one of the fundamental purposes of the costing procedures. Far too frequently, decisions are taken in education on grounds of what is pedagogically desirable without any prior consideration of what the costs are. The costs of doing something are the costs of not doing something else. That is the important thing to remember. Of course, what priorities are chosen and the extent to which costs will affect the priorities is partly determined by who does the costing. In a highly centralized system it will usually be the minister of edu-

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cation, whereas in a highly decentralized system it will be a local unit of authority. The task, of course, in either case is to make sure that the statistics used for any one part of the system are compared on a uniform basis with the cost of activities in other parts of the system. Further, it will be essential to have some co-operation between different governmental departments if the full range of statistics is to be made available to the planner. School building may be undertaken by the ministry of public works; the ministry of labour will probably have the up-to-date statistics on the trend of salaries and wages of the people who are not teachers; and expenditure on other departments (mainly defence, agriculture, health and welfare) will be necessary for the completion of costing returns. It is essential, therefore, for the authority concerned with the costing of educational programmes to have free access to relevant statistics in other departments.

It is important that the data should be presented simply and systematically. A decision-maker is not interested in costs to the nearest penny; and often to get the highest degree of accuracy in accounts takes so much time and labour that the up-to-date data are never ready. An over-all picture which draws attention is the most useful one. Yet, oddly enough, this is the most difficult thing in the world to get hold of. Clerks have been used to totting up tiny amounts. It takes an experienced planner to simplify masses of financial data, and to present it on a comparative basis.

The period of costing—the main variable factors

The scope of costing has already been dealt with in terms of the range of choice of alternatives. But for most educational administrators the annual budget is what determines what they can spend; in local systems they will be strictly limited by the amount of taxes that can be raised in the coming year. As we have already argued, the costs of education are largely fixed in the short run, so that the real issue that has to be faced is the problem of making cost projections for the middle and long range when choices are more open. A problem indeed, because, of course, the longer ahead that costs are estimated the more hypothetical the figures become. The amount that can be spent on education will depend upon the rate

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of economic growth that will take place, which is exceptionally difficult to determine. The way in which teachers' salaries will vary will depend upon factors in the labour market which very frequently cannot be at all accurately foreseen. The development of capital costs is also exceptionally difficult to forecast. Consequently we have to be prepared to present ranges of estimates for the longer term under different hypothetical assumptions that ought to be clearly spelt out. What are the factors which are likely to affect future costs in education? Of course there are many. But they can be put roughly under six headings.

In the first place there will be changes in the price level—and mostly we are interested in real costs, not in purely monetary costs. The changes in the price level will affect the actual figures that we use at any point of time, but for forecasting purposes we have to standardize the price changes. The costs of items bought in education will not necessarily change in the same direction or at the same rate as the cost of other goods. The general price index is heavily weighed, for example, with the cost of food and accommodation, neither of which enters heavily into educational costs. The major item in educational costs is teachers' salaries—and teachers' salaries may not move in the same direction as goods in general, or even wages in general. Initially, therefore, if we are to standardize costs, it is important to devise a price index for education which is separately calculated from the price index used for the economy as a whole. This is a fairly simple task with which the economists in the planning bureau will be familiar.

The second factor which affects educational costs is the changes in the relative proportions of the goods and services that enter into education, of which the chief item is teachers' salaries. In school systems which are at a fairly primitive level of development, teachers' salaries are a very high proportion of the total outlay—perhaps as much as 90 per cent—whereas in the more developed systems they fall to between 50 and 60 per cent on average. Even in the more developed countries, at the elementary level of education the proportion of teachers' salaries is much higher than at the secondary and university levels. Consequently, when we look at the future trends of educational cost we have to decide how far we think teachers' salaries will remain a constant proportion of total outgoings on education, or see in which direction and how fast we think a change may take place.

The third factor which affects educational costs is the increase in the child population. This is an aspect of projection work which is full of pitfalls. As is well known, demographic forecasting is a difficult and complex art and it becomes more difficult in countries where the statistical services are as yet relatively poorly developed. The major item affecting educational outlays in many countries is the rapid rate of growth of the child population. This is a subject which merits much more detailed consideration than the space of this booklet allows; here it is enough to mention that it is not only the total size of the child population which is relevant but its distribution between various age groups. A persistent trend towards a higher proportion of older children at school will raise costs far more than a simple increase in the number of younger children.

The fourth factor affecting educational outlays in the future is the rise in educational standards and in the demand for education. As soon as a school system has been established there are demands from parents, teachers and some politicians for more favourable conditions; for additions to the variety and scope of schools; and requests for a whole range of social amenities without which education is socially and pedagogically unsatisfactory. The pressure for increased educational outlays per child is very great and particularly so at times of rapid social change. A prudent administrator or planner who is making a forecast of educational costs will therefore allow a substantial weight to the demand for improvements in educational standards.

The fifth point which the administrator or planner who is undertaking costing procedures should bear in mind is the raising of the school-leaving age (and possibly the lowering of the age at which compulsory attendance occurs). In the developing nations the main drive in recent years has been to enrol all children in the elementary age group, but as soon as this has been done the demand for the raising of the school-leaving age to 14, 15 or 16 becomes very strong. The education of older children is more expensive than the education of younger children (both because the teachers of the higher-age-group children tend to be paid more and because the techniques of education used for older children are more expensive) so that extending the length of school life itself raises the costs of education per child-year.

This becomes especially clear, of course, when the rates of enrolments in higher education are accelerated. This is the sixth point that needs much emphasis. The unit costs of higher education are many times those of elementary education and, as has been frequently argued, the development of higher education is an integral part of the development of the whole education system. Therefore, when costing educational plans for primary and secondary schools it is essential to bear in mind the rapid development of higher education and its effects on the total cost picture.

In making long-term forecasts, therefore, we have both pressure on the total number of pupils to be educated and rising unit costs. These increasing unit costs originate from the fact that the standards of education rise, that older children cost more to educate and also at the same time a shift in the cost structure of education occurs because of changes in price levels. (The changes in price levels can be analysed by use of price indices which have been described fully elsewhere.) The purpose of the operation described here is to get at the real costs of education as opposed to the money costs and these six factors will be found to be a necessary part of the whole analysis.

Finance and accounts

So far we have considered outlays. But double-entry book-keeping suggests that we should check one side of the ledger with the other; we should look at receipts—at the sources of finance. Let us recapitulate some of our problems in interpreting accounts. In considering the financing of education a number of points have to be borne in mind. In the first place, governmental budgets and financial statements are drawn up for a particular administrative and political purpose, according to the constitution and to the various relevant statutes, usually to ensure that the legislative and accounting authorities have an adequate control over the expenditure of public money.

A further consideration is the avoidance of graft and peculation of all kinds. But accounts drawn up with these considerations mainly in mind are not necessarily those which are most suitable and convenient for people using them for administrative purposes connected with strategic decision-making and planning, any more than the statistics of school attendance, which are drawn up with the purpose of seeing that pupils are in regular attendance at school and for determining the payment of teachers' salaries, are necessarily suitable for the planning of education. Consequently, the governmental statistics themselves have to be analysed with great care in order to put them in the appropriate categories for planning purposes and for economic analysis. To take a particular instance, the planner of education will be particularly interested in the division between capital and current expenditure. These categories in governmental accounts are largely a matter of convention, since the basis of the division in capital expenditures is not normally subject to annual voting by the legislative or budgetary authorities, whereas, of course, current outlays are. But the distribution between capital and current outlays which is drawn up for administrative accounting purposes is not necessarily that which is appropriate to a consideration of capital and current expenditure in the economic sense. In the economic sense capital expenditure is that outlay which yields a flow of benefits over a long period of time, whereas current expenditure is something which yields its benefits as soon as it is undertaken. Therefore, the planner may have to juggle with the accounts in order to get a proper allocation of current and capital expenditure for his purposes.

It is in this sort of reallocation of the figures in the accounts that it is useful to check expenditure figures against receipts. The receipts which go into the (usually national) fund from which education expenditures are made arise from diverse sources. Some of them have already been enumerated: central government grants, local government grants, fees, loans, payment for services rendered, deferred payments and payments in kind are some of the main examples. It is necessary to analyse the sources of receipts in order to match them against the expected pattern of future expenditure, both in order to see that the pattern of receipts is sufficient to meet the outgoings that are expected, and also to see whether the pattern of receipts in the education sector of the economy is what is socially and economically desirable.

In developing nations there is a particular problem that the societies are usually divided into two main parts—the monetized sector and the non-monetized sector. In the monetized sector, receipts and outgoings are more in cash, whereas in the other sector a high proportion of expenditure and of receipts may be in kind. Consequently, it may be necessary to have two completely different sets of accounts for different sectors of the economy.

To summarize: we may say that any analysis of the pattern of educational expenditure now and in the future has to be set carefully against the costs that are imposed on the community by this expenditure. For this purpose a careful analysis of the sources of educational receipts is necessary.

Part Two

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Introduction

1. This part of the booklet describes costing procedures in a developing African country, about two-and-a-half years after independence. As will be seen, some of the principles and factors outlined in the first part were considered, and some of the possible difficulties were pertinent and had to be faced. Other points did not pertain: the refund of loans given specifically for education was not due to begin until some ten years afterwards; at the second level both public and private-aided schools were financed in the same way, for both capital and recurrent costs; there was no organized scheme of on-the-job education; the age-ranges at all levels were so wide that it was inappropriate to use age as a factor affecting costing—the levels and types of education were more important factors; likewise there was no 'school-leaving age'; and the value of services rendered by communities, mainly at the primary level, was virtually impossible to assess. Other points made by John Vaizey were simply never thought of, such as: the results of the differences in dates of buying and using stock; costs of educational television; possible changes in the costs of running schools; and the possibility of a public demand for improvement in standards (the overriding current demand was for greater quantity). Different methods of achieving the same objects were discussed, but never reached the costing stage; costs of the development plan concerned were calculated on the assumption that the education system would remain basically the same as that which existed.

The administration of education and its development

2. Primary education was administered by local governments and those of federated states, usually through education committees. Second-level and non-university third-level education was administered by the central government, with the exception of that in one state, which administered both primary and second-level education in its area.

3. Over-all planning of educational development, other than university, and detailed planning of second-level and non-university third-level education was conducted by the central government, which consulted the state government on the details of development of second-level education in its area. Local governments, through their education committees, where they existed, planned the detailed development of primary education within the over-all figures given to them by the central government, and those details were subject to central approval. University expansion was planned by the university council.

4. Educational planning for the central government was carried out by a planning unit within the Ministry of Education, which worked closely with a working party dealing with 'education and manpower', one of ten working parties which were drawing up plans for different sectors of public life to be moulded into an over-all development plan with a final fifteen-year objective and a first-phase five-year target for which detailed plans were to be made. The working party consisted of representatives of various ministries and of bodies, including the university, concerned with this area.

5. The development plan was based on an estimated rate of increase in the gross domestic product (GDP). Calculations were made of the high-level manpower needed to achieve this objective, and the working party was required to draw up over-all enrólment projections for each sector of the education system so as to achieve the manpower targets at the end of the first five-year period, being allocated a proportion of the GDP and a share of the investment capital.

The financing of the education service

6. The greater proportion of the finance for the education service, both capital and recurrent, came from central government sources. Funds which the central government gave to local or state governments to assist with recurrent expenses of education formed part of over-all statutory or block grants, which passed through the votes of ministries other than that of education, and possible duplication of accounting did not, therefore, arise.

7. The financial year of the central government started on 1 July, but that of local and state governments, as well as the academic year, started on 1 January. In addition to this complication, there were no audited accounts of local and state governments available for any period after independence, when they had all finally taken responsibility for the administration of local education services. Audited accounts for the central government were available up to the most recent completed financial year.

8. Government estimates and accounts for education, both central and local, were cast in a form which made extraction of expenditure on various levels and types of education easy. Votes for capital and recurrent expenditure were kept separate.

9. Income to meet the recurrent costs of running the schools came from public funds and fees (the latter being sometimes paid in the form of a scholarship or a bursary). Any other income, such as gifts, was negligible. Teachers' salaries and allowances were paid from public funds. Other recurrent expenses were paid, for the first six years of education, completely from fees, and for subsequent education (upper basic course, second-level and third-level non-university education) from a combination of fees and block, course and *per capita* grants, all of which grants came from public funds. University education was financed by direct grants from the central government to the university, and scholarships and bursaries given by both central and local governments; income from these two sources covered virtually all costs, i.e., university education could be deemed 'free', as also could the two-year upper stage of the secondary course, for which local government scholarships and bursaries were automatic. Fortunately, votes for scholarships and bursaries were kept separate, and duplication of accounting could therefore easily be avoided.

10. The central government gave local and state governments

small grants to help with capital costs of expansion of primary schools, and some of the richer local governments supplemented these grants from their own funds, but the main burden of capital development at the primary level fell on communities, who contributed either money or labour towards the provision of premises which could at the best be described as semi-permanent. Funds for capital development at levels above the first came almost completely from central government or external aid sources.

11. Capital costs were deemed to cover: (a) initial payments in respect of the site (e.g., compensation to evicted tenants); (b) survey, design, drawing and supervisory charges for site, buildings and works; (c) contract costs for all buildings and works, including labour and materials; (d) furniture and all equipment which was deemed to serve for more than the first year (thus an initial capital grant would be given for such things as a vehicle, a projector, and library and textbooks for additional classes—it was considered that textbooks should have an average life of at least three years, and the school was expected to set aside funds from its recurrent income for the purchase of replacements as they became necessary).

12. Depreciation of premises, as distinct from routine repair and maintenance (which was included in recurrent expenditure), was not taken into account. If it became necessary, say, to replace a building, the central government normally sought additional funds for the purpose.

The unit

13. The unit on which costs were based was the 'pupil' for recurrent expenditure, and the 'place' for capital (the possibility of using the 'teacher' or 'class', as suggested in the first part of this work, was never raised). Pupil and place are not necessarily the same; places may be under-utilized or overcrowded. Erection of buildings is a commitment to accept the numbers which they can accommodate, and it is wise to be prepared for a full enrolment. Foresight is most important when commitment to a permanent structure is being made.

The content of unit costs

RECURRENT

14. The country's over-all development plan was costed at rates which pertained at the beginning of the development period. A proportion of the estimated GDP for the first target year (year 5) was allotted for recurrent expenditure on education, and this represented the sum, at those rates, which would be actually spent in that year. Thus, for instance, pensions payable to teachers who would be on retirement in that year would be chargeable against that allocation, but the pension element theoretically earned by local teachers still in service during that year would not; the 'fringe' benefits for expatriate teachers, which would be actual expenditure, would have to be included (see paragraph 26). Funds set aside for replacement of furniture and equipment would enter the costing; depreciation of buildings would not, but the costs of their routine maintenance and repair would have to be taken into account. In the allocation of shares of the GDP, there was a 'public services' head; it was assumed that the administration and inspection of education services came under that head, and their costs were not therefore taken into account in assessing unit costs for the schools.

CAPITAL

15. The content of these costs has already been listed in paragraph 11. It was proposed to establish a Ministry of Education architectural and works section and it was therefore assumed that the costs of survey, design, drawing and supervision would be included in the 'public services' head.

MATERIAL AVAILABLE

16. Audited accounts of the central government for the financial year 1963/64 were available. For local and state governments only estimates (the latest were those of 1964) could be obtained. The school statistics for 1963 and 1964 had been summarized; those at the second and third levels of education were considered to be good; at the primary level there was more room for doubt, but it was felt

that any margin of error was likely to be smaller than margins which might arise in other factors affecting the development plan.

17. The major difference in the availability of material was therefore as between the centrally and locally administered services. To illustrate the methods used to calculate recurrent costs, the following detailed explanation will therefore concentrate on primary schools as a locally administered service, and secondary schools as a centrally administered service. No material is available for university education, because economies were still the subject of discussion with the university authorities.

18. The main capital expenditure was to be on secondary schools, and this section of the education system is therefore used to illustrate the method of calculation of capital unit costs.

Annual recurrent costs: basic course (primary) schools

19. These costs were made up of teachers' salaries and allowances and capitation grants for the pupils, both paid by local governments, and fees paid by the students. It could be assumed that income was equal to expenditure, as the teachers were paid directly by the authorities, and fees and capitation grants, which met other recurrent costs, were normally fully spent.

20. There were two main problems: only estimates of expenditure by local authorities were available, and there was no firm information about the actual collection of fees. It was known that the standard of enforcement of collection varied from area to area, and since the rates also varied very considerably, the total amount collected was largely a matter of guesswork. At the beginning of 1964 the administration of these funds had been centralized in the hands of area education officers, and when their first audited accounts become available, much more accurate calculations can be made. In the meantime, the figure had to be guessed (the 'estimation' mentioned on page 19 of Part One of this work). From the experience of administrators it was assumed that the average fee collection would come to about £1.3 per pupil per annum.

21. The form of local authority votes allowed administration costs and funds for the running of the schools to be extracted easily. The total of the local government votes for the school costs for 1964

(i.e., estimates of public expenditure only) was about £3,510,000; the total enrolment in the schools was 528,646. Thus the average cost from local government votes for the running of the schools was £6.6 per pupil, to the nearest 0.1 of a £. To this was added £1.3 for fees, giving a total of £7.9 per pupil per annum at 1964 rates.

22. This was the unit cost for the running of the schools, which was required for the development plan, but as a matter of interest, the exercise can be carried a little farther. The total local administration costs were about £177,000, which gives a rate of £0.3 per pupil, making a total, including local administration, of £8.2 per pupil. In addition, a revision of salaries and allowances at 1 July 1964 (the funds for which came from the central government, and were not therefore included in the local government estimates) added about £380,000 to the annual bill, or £0.7 per pupil, making the cost at the new rates £8.6 without local administration, and £8.9 with it.

Annual recurrent costs: secondary schools

23. The expansion of secondary education formed a major part of the development plan, and for this section of the education system fairly full and detailed information was available. For the calculations, it was decided to use only those schools administered directly by the central government, which formed about three-quarters of the service, as final accounts were available for public expenditure on these schools for the financial year 1963/64, whereas only estimates were available for the remaining quarter which were administered by a state government (see paragraph 2).

24. The secondary course was divided into a four-year lower stage (grades 9 to 12) and a two-year upper stage (grades 13 and 14); only a proportion of students leaving the lower stage entered the upper. At the lower stage, most of the schools had double sections; a few urban day schools, which ran sessions for two sets of pupils each day, had up to twelve sections. Upper stage classes were added to the top of some of the lower stage schools, usually as double or treble sections. (In 1964, seventeen out of a total of forty-three schools had upper classes.)

25. The teaching staff consisted of a majority of graduates and a minority of non-graduates. There were few local teachers, owing to counter-attractions in other occupations, and the bulk of the

staff were therefore expatriates, most of them serving under external aid schemes. In the development plan it was proposed to produce a large number of local secondary teachers with the ultimate object of replacing all expatriates by the end of the over-all fifteen-year programme.

26. Local teachers were paid a basic salary, and those in certain designated posts received in addition a responsibility allowance; expatriates were paid only a basic salary on a different scale, and many of them also received an overseas allowance paid by their own governments.

Fortunately the local teacher's salary plus allowance was quite close to the expatriate's basic salary, and since the overseas allowance was not a charge on the local economy, and did not therefore enter the calculations, the replacement of expatriates by local teachers did not introduce, on this score, any modifying factor into the costs. However, the local teacher was on pensionable terms, and the expatriate on contract terms, with certain 'fringe' benefits such as passages, medical expenses and terminal gratuities, paid at the end of two years irrespective of whether the teacher renewed his contract. Since the cost was to be based on actual expenditure in 1971 (see paragraph 14), it had to be assumed that the costs of an expatriate included these benefits, which amounted to about 40 per cent of the salary.

27. As the proposed teacher-training scheme fed the system, there would be an increasing proportion of teachers on the lower points of the scale; it was anticipated that by 1971 about half of the teacher force would be local teachers with less than six years' experience (see paragraph 33*(b)*); would this have any effect on the rate of teacher costs? In 1963/64 the average pay of a teacher, excluding expatriate allowances, was equal to about the fifth point on the graduates', or the tenth point on the non-graduates' scale. The effect of the increasing number of local teachers on lower points would tend to lower this average, but it was presumed that the expatriate section of the teaching force would have a counter-effect, and that the result might be a lowering of the average by only a point or so on the scale; the increment at these levels is about 4 per cent of the salary. It was decided not to let this factor affect the calculations.

28. In the allocation of teaching duties, the non-graduates teach mainly in the lower classes, and graduates in the upper. Would

it therefore be possible to differentiate between teacher costs per pupil at the two levels? The schools were run as completely integrated schools; teachers who normally taught in the upper section often gave some lessons in the lower section, especially in the last (examination) year. Again, non-graduate teachers often took pupils of all levels in such extra-curricular activities as games, singing, scouting, and societies; in boarding facilities, all staff supervised pupils of all levels. To allocate costs of individual teachers according to the class levels which they normally taught would therefore be to base costs on only part of their services, and in view of the integrated nature of the schools it would be impossible to allocate teachers' services to any one sector. Average teacher costs per pupil were therefore allocated for the secondary system as a whole.[1]

29. It was possible, however, to differentiate non-salary costs at the two stages. In particular, books and equipment at the upper stage were more expensive than those at the lower, a fact which was reflected in differing rates of capitation grants. As in the case of primary schools, it could be assumed that expenditure was equal to income, as schools usually spent virtually all they received, and it was therefore safe to assume that capitation grants and fees were spent on the pupils for whom they were paid.

30. Another factor which would have an effect on over-all costs was the change in the proportion of boarding and day enrolments. For reasons which need not be explained in this booklet, it was planned that the 49 : 51 boarding to day enrolment ratio in 1964 would be changed to 70 : 30 by 1971. This would not have any effect on the rates of teacher costs, because staffing ratios and qualifications were the same for both kinds of schools, but it would affect the average of capitation grants and fees, which were higher for boarding schools than for day schools.

31. Such then were the factors influencing unit costs. There were four main elements in the financing of the schools: teacher costs, capitation grants, and block grants for established non-teaching staff, all paid from government funds, and fees paid by pupils. The fee and capitation and block grant rates per pupil were all known; it remained to calculate the teacher cost per pupil, which was done by a residual process. There was a small complication due to the

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[1] However, see footnote 2 on page 37.

fact that a dying secondary modern system was paid from the same vote, but it was so small, and the average teacher quality so little below that of the secondary schools, that it could be assumed that teacher costs for the secondary modern averaged the same as those for ordinary secondary.

32. The basic facts necessary for the calculations were as shown in Tables 1 and 2.

In secondary schools a block grant at an average of £4 per pupil was given for established non-teaching staff costs.

TABLE 1. Enrolments

Year	Grades 9-12			Grades 13-14			Totals of grades 9-14			Secondary modern
	Boarding	Day	Total	Boarding	Day	Total	Boarding	Day	Total	Boarding
1963	3 444	3 517	6 961	155	261	416	3 599	3 778	7 377	481
1964[1]	4 299	4 422	8 721	324	336	660	4 623	4 758	9 381	547
Average 1963/64[2]	3 871.5	3 969.5	7 841	239.5	298.5	538	4 111	4 268	8 379	514
Projected 1971[3]	18 940	8 117	27 057	2 239	959	3 198	21 179	9 076	30 255	—

1. Of the day pupils in 1964, 230 were living in urban hostels detached from schools
2. Since the financial year ran from 1 July 1963 to 30 June 1964 (see paragraph 7), the enrolments for the two years had to be averaged, so as to correspond to the funds expended on them
3. The 1971 projections were based on manpower forecasts made in accordance with the principles of the over-all fifteen-year development plan until 1981. The estimated manpower needs for the first phase, 1966/71, were converted into enrolments, taking repeating and drop-out rates into account, and the resultant totals for 1971 were as shown in the table

TABLE 2. Annual rates of recurrent income for non-teacher costs

Type of income	Grades 9-12		Grades 13-14		Secondary modern Boarding
	Boarding	Day	Boarding	Day	
	£	£	£	£	£
Capitation grant	22.5	5	40	20	10
Fees (average)	25	17	25	17	25

The annual rate of grant for an urban hostel resident was £17.5.

Total expenditure on teachers' salaries and allowances, capitation grants and block grants by the Ministry of Education from 1 July 1963 to 30 June 1964 was £638,378. This did not include gratuities and other fringe benefits for expatriate teachers, which were paid from other votes.

Calculation of unit costs

33. The calculation of unit costs may be broken down into three part: (a) teacher cost per pupil in 1963/64; (b) teacher cost per pupil in 1971 at 1963/64 rates; (c) total annual recurrent cost rates in 1971.

(*a*) *Teacher cost per pupil in 1963/64*

In 1963/64 the following capitation grants were made:

3,871.5 grades 9-12 boarding at £22.5 = £87,108.75
3,969.5 grades 9-12 day at £5 = £19,847.50
239.5 grades 13-14 boarding at £40 = £9,580.00
298.5 grades 13-14 day at £20 = £5,970.00
514 secondary modern at £10 = £5,140.00
230 hostel residents at £8.75[1] = £2,012.50

together with block grants of £4 to 8,379 secondary students (£33,516.00), giving an over-all total of £163,174.75.

The total ministry expenditure was £638,378. Thus, by deducting the above total, the expenditure on salaries and allowances is found to be £475,203.25.

Dividing this figure by the total number of students, 8,893 (8,379 secondary plus 514 secondary modern) gives £53.4, the average teacher cost per pupil in respect of salaries and allowances.[2]

As the teachers were virtually all expatriates, this figure must be raised by 40 per cent to allow for their fringe benefits, giving a final figure of £74.8.

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[1] This figure is for six months only, the annual grant being £17.5.

[2] These were the calculations which were used at the time. In subsequent variations of the plan, it became necessary to look closer at the comparative lower and upper teacher costs per student on an enrolment basis (not on the

(*b*) *Teacher cost per pupil in 1971 at 1963/64 rates*

The planned output of local teachers for secondary schools up to the end of 1970 was 825. Statistics enabling wastage of teachers to be calculated were not available in sufficient detail, and it was therefore necessary to guess the expected loss. It was assumed that 770 local teachers would still be in service in 1971.

The total number of classes planned for 1971 was: 813 for grades 9-12 and 110 for grades 13-14, a total of 923.

The staffing ratio at the grade 9-12 stage was thirteen teachers for eight classes, and at the grade 13-14 stage three teachers for two classes.

Therefore the number of teachers needed in 1971 for grades 9-12 would be 813 × 13/8, i.e., 1,321; and for grades 13-14 would be 110 × 3/2, i.e., 165. There would be 68 supernumerary heads for 68 schools; therefore the total number of teachers needed would be 1,554, of whom 770 local teachers, leaving 784 expatriates.

There would therefore be 770 teachers at the cost without expatriate fringe benefits, and 784 with them. This means that the average teacher cost per pupil would be

$$\frac{(770 \times 100) + (784 \times 140)}{(770 + 784)}$$

i.e., 120 per cent of the cost without the benefits, which is 120 per cent of £53.4, giving £64.1,[1] at 1963/64 rates, in 1971.

Thus the teacher cost per pupil, at the same rates, would drop from £74.8 in 1963/64 to £64.1 in 1971, owing to the increasing localization of the teaching force in secondary schools.

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basis of allocation of teachers of different qualifications to different sections). At a student-teacher ratio of 21.5 for the lower section, and 13.3 for the upper, the establishment of teachers would be 7,841 divided by 21.5, i.e., 365, for the lower section, and 538 divided by 13.3, i.e., 40, for the upper. One could therefore theoretically allocate the £475,203.25 for teachers proportionately, as £428,269.59 to lower, and £46,933.65 to upper. Dividing £428,269.59 by 7,841 (average total enrolment, 1963/64) gives £54.6 per student at the lower level, and dividing £46,933.65 by 538 (average total enrolment, 1963/64) gives £87.2 at the upper level. This method would allow for different rates of development for upper and lower stages.

[1] The principles of the previous footnote apply equally here. One would also have to make an assumption about the proportions of expatriates and local teachers in each stage.

(c) *Total annual recurrent cost rates in 1971*

The annual rates for each level of student, both boarding and day, would therefore be as shown in Table 3.

TABLE 3. Annual rates

Stage	Type of student	Teacher cost	Capitation grant	Fees	Block grant	Total
		£	£	£	£	£
9-12	Boarding	64.1	22.5	25	4	115.6
	Day	64.1	5	17	4	90.1
12-13	Boarding	64.1	40	25	4	133.1
	Day	64.1	20	17	4	105.1

34. These final figures can now be rounded to the nearest pound. Finally, Table 4 (p. 40) shows the net result of the factors influencing the comparative over-all unit costs as between 1963/64 and 1971. Increasing localization of the teaching service reduces current expenditure, but this is nearly counter-balanced by increases due to an increase in the proportion of boarders, and faster development of the upper section of the course, and the final result is only a small reduction of less than 4 per cent in the average cost per pupil. (This result would be a little different if the principles shown in footnote 2 on pages 37-38 were applied. Assuming an even distribution of expatriates and local teachers between the upper and lower sections in 1971, the over-all average cost per teacher would be £69.6, which would make the total figure for 1971 in the last section of Table 4 £115.2, compared with £114.3 for 1963/64, an increase of less than 1 per cent.)

TABLE 4. Comparison of recurrent unit costs for 1963/64 and 1971

Item	1963/64			1971
	Explanation and/or notes	Compared figure	Compared figure	Explanation and/or notes
		£	£	
Teacher cost per pupil	Virtually all teachers receive fringe benefits	74.8	64.1	Only about half of the teachers receive fringe benefits
Cost per pupil grades 9-12 boarding	£ Teacher cost 74.8 Capitation grant 22.5 Fee 25 Block grant 4	126.3	115.6	£ 64.1 Teacher cost 22.5 Capitation grant 25 Fee 4 Block grant
Cost per pupil grades 9-12 day	Teacher cost 74.8 Capitation grant 5 Fee 17 Block grant 4	100.8	90.1	64.1 Teacher cost 5 Capitation grant 17 Fee 4 Block grant
Cost per pupil grades 13-14 boarding	Teacher cost 74.8 Capitation grant 40 Fee 25 Block grant 4	143.8	133.1	64.1 Teacher cost 40 Capitation grant 25 Fee 4 Block grant
Cost per pupil grades 13-14 day	Teacher cost 74.8 Capitation grant 20 Fee 17 Block grant 4	115.8	105.1	64.1 Teacher cost 20 Capitation grant 17 Fee 4 Block grant

Over-all average cost per pupil grades 9-12	Capitation grants	£			Capitation grants	£
	3,871.5 boarders at £22.5	87 108.75			18,940 boarders at £22.5	426 150
	3.969.5 day at £5	19 847.50			8,117 day at £5	40 585
	Fees				Fees	
	3,871.5 boarders at £25	96 787.50			18,940 boarders at £25	473 500
	3,969.5 day at £17	67 481.50			8,117 day at £17	137 989
	Total (capitation plus fee) for 7,841 pupils	271 225.25			Total (capitation plus fee) for 27,057 pupils	1 078 224
			£	£		
	Average (capitation plus fee) per pupil		34.6	39.9	Average (capitation plus fee) per pupil	
	Teacher cost per pupil		74.8	64.1	Teacher cost per pupil	
	Block grant per pupil		4.0	4.0	Block grant per pupil	
			113,4	108,0		
	Proportion of boarders to day, 49 : 51				Proportion of boarders to day, 70 : 30	
Over-all average cost per pupil grades 13-14	Capitation grants	£			Capitation grants	£
	239.5 boarders at £40	9 580.00			2,239 boarders at £40	89 560
	298.5 day at £20	5 970.00			959 day at £20	19 180
	Fees				Fees	
	239.5 boarders at £25	5 987.50			2,239 boarders at £25	55 975
	298.5 day at £17	5 074.50			959 day at £17	16 303
	Total (capitation plus fee) for 548 pupils	26 612.00			Total (capitation plus fee) for 3,198 pupils	181 018

TABLE 4. (continued)

Item	1963/64				1971	
	Explanation and/or notes		Compared figure	Compared figure	Explanation and/or notes	
			£	£		
Over-all average cost per pupil grades 13-14 (*cont.*)	Average (capitation plus fee) per pupil		49.5	56.6	Average (capitation plus fee) per pupil	
	Teacher cost per pupil		74.8	64.1	Teacher cost per pupil	
	Block grant per pupil		4.0	4.0	Block grant per pupil	
	Total cost per pupil		128.3	124.7	Total cost per pupil	
	Proportion of boarders to day, 45 : 55				Proportion of boarders to day, 70 : 30	
Over-all average cost per pupil grades 9-14	Total capitation plus fees	£			Total capitation plus fees	£
	7,841 pupils grades 9-12	271 225.25			27,057 pupils grades 9-12	1 078 224
	538 pupils grades 13-14	26 612.00			3,198 pupils grades 13-14	181 018
	8,379 pupils grades 9-14	297 837.25			30,255 pupils grades 9-14	1 259 242
			£	£		
	Average (capitation plus fee) per pupil		35.5	41.6	Average (capitation plus fee) per pupil	
	Teacher cost per pupil		74.8	64.1	Teacher cost per pupil	
	Block grant per pupil		4.0	4.0	Block grant per pupil	
	Total cost per pupil		114.3	109.7	Total cost per pupil	
	Proportion of pupils grades 9-12 to 13-14, 94 : 6				Proportion of pupils grades 9-12 to 13-14, 89 : 11	

Capital costs: secondary schools

35. Although capital works of various kinds had been undertaken at schools for many years, it was not considered appropriate to use this experience as the basis for the calculation of unit capital costs because nearly all the works had been carried out as additions to, or adaptations of, the premises of existing schools, and there was therefore little or no experience of building up the system with new schools. Also, there had been no standardization; schools had employed private architects, and, although the designs were subject to approval by the ministry, there was considerable variation in space, design, standards and cost rates between schools. Furthermore, concern had been expressed at rises in costs of school buildings, and it was considered necessary to try to reverse this trend.

36. It was therefore decided that all secondary-school buildings should be built from standard plans. Arguments were raised for allowing variations in the style of buildings in different schools, but the major objective was to achieve the maximum expansion possible with the funds available, and the principle of variety as an aesthetic objective had to be sacrificed.

37. Decisions were therefore made on: (a) the rooms, buildings, furniture and equipment which were necessary for the efficient running of a secondary school; (b) the scales on which sizes of rooms and buildings should be based and furniture and equipment supplied; (c) a set of standard plans for the various buildings drawn up on the basis of those scales. The buildings were designed to achieve the scales laid down with as simple a structure as possible, in reasonably cheap materials, without going to the extreme of cheapening the construction at the risk of too short a life for the buildings.

It is not proposed in this booklet to go into the details of the various points which were discussed in the attempt to achieve the above objectives, although a description of such discussions might have been of some help to others seeking to arrive at the same ends; the purpose here is rather to show how unit costs were calculated on the basis of the scales laid down.

38. As already stated in paragraph 24, the secondary-school system was divided into a four-year course followed after selection by a two-year course. The four-year course was a general course, which was being broadened to include agricultural biology, commercial

TABLE 5. Scales of rooms, buildings and furniture and equipment for secondary schools

	Building or works	*Unit basis*	*Scales of units*
1	Offices	Complete	One per school
2	Staff room	Established teacher posts	× number of approved teacher posts
3	Library	Lower school place	× number of lower school places
		Upper school place	× number of upper school places
4	Class-room	Complete	× 75 per cent of number of approved classes
5	Class-room stores	Class-room	× number of approved class-rooms
6	Geography room	Complete	One when upper school geography begins
7	Art and craft room	Complete	One per schooi; a second when third stream begins
8	Laboratory	Complete	One per stream lower school One per science stream upper school
		Per single group of laboratories offering physics, chemistry and biology	1st year lower school 2nd year lower school 3rd year lower school 1st year upper school
9	Home economics combined practical room	Complete	See note
10	Home economics model house	Complete	See note
11	Home economics extra practical room	Complete	See note
12	Workshop	Complete	One of each (woodwork and metalwork) per double stream taking subject
13	Technical drawing room	Complete	One per double stream taking subject
14	W.C.s (day school)	Place	× number of approved places
15	Class-room W.C.s (boarding school)	Place	× number of approved places
16	Dormitory	Place	× number of approved places
17	Laundry drying area	Place	× number of approved places
18	Students' common-room	Place	× number of approved places
19	Sick bay	Place	× number of approved places
20	Matron's quarters	Complete	One per school
21	Dining hall	Place	× number of approved places
22	Kitchen	Place	× number of approved places
23	Assembly hall	Place	× number of approved places
24	Stores, maintenance of premises	Up to 280 places	One per school of up to 280
		Above 280 places	One per school of above 280
25	Head's house	Complete	One per school
26	Teacher's/Bursar's house	Complete	× number of approved teacher/bursar posts
27	Subordinate staff housing	Approved post	× four (two cooks, one driver, one quartermaster)
28	Water supply	(3)	
29	Sewage		
30	Electricity		
31	Other site works		
32	Initial textbooks	Lower-school class	× number of approved lower school classes
		Upper-school class	× number of approved upper school classes
33	Other initial teaching equipment	School	One per school
34	Vehicle	School	One per school

N.B. *In items 1 to 9, 11 to 13, 16, 19 to 21 super area and costs include 6 ft. wide verandah. Items 2, 3, 18, 19, 21 and 22 should always be designed for a minimum of 280 places, and should later be expanded as the school grows. All costs exclusive of fees for architects.*

Works				Furniture and equipment	
Area (sq.ft.)		*Costing*			
Floor	*Super*	*£ per sq.ft.*	*£ per unit*	*Nature*	*£ per unit*
470	790	1.4	1 110	Furniture and equipment	220
29	49	1.4	69	Furniture	3
5	6.45	1.15	7.42	Furniture and equipment	0.6
				Books	2.86
7	9.11	1.15	10.48	Furniture and equipment	1.2
				Books	10
665	910	1.1	1 000	Furniture	190
10 per cent of class-room	10 per cent of class-room	1.1	10 per cent of class-room	—	—
997	1 321	1.225	1 620	Furniture and equipment	450
997	1 321	1.225	1 620	Furniture and equipment	450
				Gas installation	270
(1 150) 1 380	1 843	1.525	2 810	Furniture	450
				Teaching equipment	500 500 800 3 300
	1 824	1.4	2 550	Furniture and equipment	1 010
	1 482	2.0	2 964	Furniture	100
	1 824	1.4	2 550	Furniture and equipment	240
810	1 186	1.1	1 305	Furniture and equipment (woodwork)	450
				Furniture and equipment (metalwork)	3 650
997	1 321	1.1	1 453	Furniture and equipment	450
	0.8	3.0	2.4	—	—
	0.4	3.0	1.2	—	—
Sleeping (1) 45	74.67	1.45	108	Furniture	12
7	7.35	1.0	7.35	—	—
4	5.20	1.15	6	Furniture	0.65
Sleeping (1) 2 (2)	3.88	1.45	5.63	Furniture and equipment	0.6
500	729	1.45	1 060	Furniture and equipment	150
10	12.37	1.5	26.7	Furniture and equipment	3.5
5	5.42			Furniture and utensils	0.85
				Cooking equipment	(3)
10	10.54	1.25	13.175	Furniture, equipment, stage lightings and fittings	2.15
200	231	1.25	290	—	—
400	441	1.25	550	—	—
	1 600	2.0	3 200	Furniture and equipment	400
	1 400	2.0	2 800	Furniture and equipment	300
	250	1.75	440	—	—
				Books	250
				Books	300
				Teaching equipment	500
				Vehicle	1 300

(1) In addition, there are ablutions, W.C.s, etc.
(2) That is, one bed, occupying 50 sq.ft. floor area, per 25 places
(3) To be separately approved according to circumstances

subjects, or woodwork and metalwork for boys, and commercial or homecraft subjects for girls. At the upper stage, students specialized, and the course was split into two broad divisions: arts and science. The planned size of a class in the lower section was thirty-five, and in the upper, thirty. All upper-stage classes were organized as 'tops' to lower-stage schools (see paragraph 24), and the staffing ratio was thirteen teachers for eight classes in the lower section, and three teachers for two in the upper. Woodwork, metalwork and homecraft subjects could be taught only to half a class at a time, and since these subjects were confined to the lower course, this had a slightly higher teacher-to-class ratio. Each school had a supernumerary head. At the time of planning most schools were double section at the lower stage (see also paragraph 24); it was policy that, as far as the degree of expansion would allow, schools should be raised to a minimum of treble stream at the lower level.

39. All teachers had to be housed; the majority were expatriates, and they were likely to remain in the majority for some years [see paragraph 33*(b)*]. In any case, the national housing situation was such that the housing of local teachers also could not be avoided, especially if there was to be any stability in the staffing of schools!

40. The scales are shown in Table 5 (pages 44-45), which was issued with detailed explanatory notes of no concern to us in this work. The costs were those which were estimated to be reasonable at the time the scales were issued. Possible variations will be dealt with later (see paragraph 46). Furniture and equipment are given in terms of money. These again were the estimated costs, at the time, of purchasing the items which were considered necessary.

41. Table 6 summarizes all the unit costs calculated in Tables A to F (see Appendix). Tables A to F show examples of how these scales could be used to calculate the unit cost, i.e., cost per place, for selected typical schools of different sizes and for different sexes.[1] Table A shows a comparison of the costs of the buildings and works for boys', girls' and mixed double-section schools at the lower stage only; Table B shows the costs of the furniture and equipment for the same schools. Tables C and D show a similar comparison for treble-section lower-stage schools. Tables E and F show the costs of three possible schools combining lower and upper stages.

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[1] Table 6, as well as Tables A to F in the Appendix, should be read in conjunction with Table 5; the figures in parentheses in these tables refer to the 'Scale of units' column in Table 5.

TABLE 6. Summary of capital costs per place

Sections: lower + upper	2 + 0			3 + 0			2+2	3+2	3+3
Sex:	Boys	Girls	Mixed	Boys	Girls	Mixed	Mixed	Mixed	Mixed
	£	£	£	£	£	£	£	£	£
Boarding									
Buildings and works	433	467	462	417	436	426	441	418	417
Furniture and equipment	89	82	94	88	73	81	94	84	82
TOTALS	522	549	556	505	509	507	535	502	499
Day									
Buildings and works	260	294	289	248	267	258	271	251	251
Furniture and equipment	67	59	72	67	52	59	72	63	61
TOTALS	327	353	361	315	319	317	343	314	312

42. A study of Table 6 reveals some interesting points. If a school has only two sections at the lower stage, the existence of girls in the school makes the capital cost per place about 5 per cent more expensive in a boarding school and about 9 per cent more in a day school; Table A shows that this is due to the costs of the buildings for the teaching of homecraft, which are not fully utilized in a school of this size; the difference disappears if the lower stage is of three sections, because these premises are then more fully utilized (the cheaper rate of furniture and equipment for the girls' school, as compared with the boys' and mixed schools, is due to the heavy weighting of the equipment for the metal workshop in the total costs of boys' practical work). Building and equipping a three-section school, as compared with a two-section school, is about 7 per cent cheaper per place for boarding schools and about 9.5 per cent for day schools. The addition of upper places reduces the over-all average very slightly, which means that the extra upper-stage place cost arising from more expensive teaching facilities and additional housing for staff at a higher teacher-pupil ratio is slightly more than set off by the costs arising from practical subjects in lower classes, which are not taught in upper classes.

43. This close proximity of the costs per place in an integrated lower and upper school and those in a school which has only lower classes makes place costing for the purposes of a plan easier. From these figures it is reasonable to say that a secondary-school place

in a development plan can be costed at £500 for a boarding place and £315 per day place, on the assumption that the plan was to be costed for new three-section schools.

44. If, however, one were expanding, say, a two-section mixed boarding school to three sections, the costs would work out as follows:

Three-section: buildings and works, £179,104; plus furniture and equipment, £33,901; a total of £213,005.

Two-section: buildings and works, £129,428; plus furniture and equipment, £26,365; a total of £155,793.

The extra cost thus is £57,212, which, for 140 additional places, would work out at £409 per extra place. This is based on the assumption that the buildings to be added are separate from the existing buildings, and that the original two-section school is fully built and equipped. It often happens that it is not!

45. Having gone through the maze of these calculations, let us now ask ourselves exactly what we have achieved and for what purpose. It is most important to realize the limited functions of these cost figures, and how they fit into the scheme of planning and implementing development.

These figures give an approximate cost per unit which can be used in projecting over-all enrolments and provision of places. We could say, for instance, that a plan envisaging the addition of 185 lower-stage and 40 upper-stage secondary classes in new treble-section schools, an enrolment of 6,150 at the lower stage and 1,170 at the upper, would result in the following costs (assuming all are boarding):

Additional recurrent costs per annum when development is complete would be: lower stage, 6,150 × £116, i.e., £713,400; upper stage, 1,170 × £133, i.e., £155,610; a total of £869,010; or, in round figures, about £870,000.

Capital cost of developing the places (185 × 35 + 40 × 30 × £500) would be £3,837,500, i.e., one could talk in terms of £3.8 million.

46. This is as far as these figures go, and it should not be thought that they can give any more accurate information than this. All sorts of factors can affect them: teachers' salaries, for example, may be revised at rates which change their real value in relation to the economy of the country. An important factor in capital expenditure is the possibility of variations in building costs, depending on the changing relationship between the total construction work being

carried out in the country and the capacity of the building industry; a few large building projects falling at the same time could saturate the capacity of the industry and raise tenders by appreciable percentages; equally, a dearth of contracts available at any one time could, at least temporarily, pull prices down. These costings must therefore be reviewed at least annually, in the light of experience, and the whole plan, which might itself be changed in other respects, must be re-costed. Calculations of this nature can only be used to assess the order of magnitude of the cost of a plan. There are so many assumptions made in building up a plan that it would be deceptive to give too much precision to the final figure; hence the choice of, say, the round figure of £500 for the capital cost of a secondary-school boarding place. Each year the sums of money required must be estimated on the basis of the schools, teachers, and pupils known to exist; and the actual cost is not known until the last pound is spent.

Appendix to Part Two

TABLE A. Costs of buildings and works for double-section lower-stage schools[1]

Sections: lower + upper		2 + 0	
Classes: lower + upper		8 + 0	
Places: lower + upper		280 + 0	
Sex:		Boys	
Item	**Building or works**	**Boarding**	**Day**
		£	£
1	Office	1 110	1 110
2	Staff room	(+ 13) 897	(+ 13) 897
3	Library	2 078	2 078
4	Class-rooms	(6) 6 000	(6) 6 000
5	Class-room stores	600	600
6	Geography room	–	–
7	Art and craft room	1 620	1 620
8	Laboratories	5 620	5 620
9	Home economics combined practical room	–	–
10	Home economics model house	–	–
11	Home economics extra practical room	–	–
12	Workshops	(1 + 1) 2 610	(1 + 1) 2 610
13	Technical drawing room	1 453	1 453
14	W.C.s. (day school)	–	672
15	Class-room W.C.s.	336	–
16	Dormitories	30 240	–
17	Laundry drying area	2 058	–
18	Student's common-room	1 680	–
19	Sick bay	1 576	–
20	Matron's quarter	1 060	–
21	Dining hall	7 476	–
22	Kitchen		
24	Stores, maintenance of premises	290	290
25	Head's house	3 200	3 200
26	Teacher's/Bursar's houses	(14) 39 200	(14) 39 200
27	Subordinate staff houses	1 760	–
28	Water supply	4 000	3 000
29	Sewage	4 000	3 000
30	Electricity	1 000	500
31	Other site works	1 500	1 000
	TOTALS	121 364	72 850
	Average (cost per place)	433	260

[1] Items 28 to 31 are estimated as average.

2 + 0 8 + 0 280 + 0 Girls		2 + 0 8 + 0 280 + 0 Mixed	
Boarding	Day	Boarding	Day
£	£	£	£
1 110	1 110	1 110	1 110
(× 13) 897	(× 13) 897	(× 13) 897	(× 13) 897
2 078	2 078	2 078	2 078
(6) 6 000	(6) 6 000	(6) 6 000	(6) 6 000
600	600	600	600
–	–	–	–
1 620	1 620	1 620	1 620
5 620	5 620	5 620	5 620
5 100	5 100	2 550	2 550
5 928	5 928	2 964	2 964
2 550	2 550	2 550	2 550
–	–	(1 + 1) 2 610	(1 + 1) 2 610
–	–	1 543	1 453
–	672	–	672
336	–	336	–
30 240	–	30 240	–
2 058	–	2 058	–
1 680	–	1 680	–
1 576	–	1 576	–
1 060	–	1 060	–
7 476	–	7 476	–
290	290	290	290
3 200	3 200	3 200	3 200
(14) 39 200	(14) 39 200	(14) 39 200	(14) 39 200
1 760	–	1 760	–
4 000	3 000	4 000	3 000
4 000	3 000	4 000	3 000
1 000	500	1 000	500
1 500	1 000	1 500	1 000
130 879	82 365	129 428	80 914
467	294	462	289

TABLE B. Costs of furniture and equipment for double-section lower-stage schools

Sections: lower + upper		2 + 0	
Classes: lower + upper		8 + 0	
Places: lower + upper		280 + 0	
Sex:		Boys	
Item	Type of furniture or equipment	Boarding	Day
		£	£
1	Office	220	220
2	Staff room	(× 13) 39	(× 13) 39
3	Library:		
	Furniture and equipment	168	168
	Books	800	800
4	Class-rooms	(6) 1 140	(6) 1 140
6	Geography room	–	–
7	Art and craft rooms	450	450
8	Laboratories:		
	Gas installation	270	270
	Furniture	900	900
	Teaching equipment	1 800	1 800
9	Home economics combined practical room	–	–
10	Home economics model house	–	–
11	Home economics extra practical room	–	–
12	Workshops	4 100	4 100
13	Technical drawing room	450	450
16	Dormitories	3 360	–
18	Students' common-room	182	–
19	Sick bay	168	–
20	Matron's quarters	150	–
21	Dining hall	980	–
22	Kitchen:		
	Furniture and equipment [1]	238	–
	Cooking equipment	1 200	–
25	Head's house	400	400
26	Teachers'/Bursar's houses	(14) 4 200	(14) 4 200
32	Initial textbooks	2 000	2 000
33	Other initial teaching equipment	500	500
34	Vehicle	1 300	1 300
	TOTALS	15 015	18 737
Average (cost per place)		89	67

[1] The cost of cooking equipment has been assessed at about the average of the various types available.

2 + 0 8 + 0 280 + 0 Girls		2 + 0 8 + 0 280 + 0 Mixed	
Boarding	Day	Boarding	Day
£	£	£	£
220	220	220	220
(× 13) 39	(× 13) 39	(× 13) 39	(× 13) 39
168	168	168	168
800	800	800	800
(6) 1 140	(6) 1 140	(6) 1 140	(6) 1 140
–	–	–	–
450	450	450	450
270	270	270	270
900	900	900	900
1 800	1 800	1 800	1 800
2 020	2 020	1 010	1 010
200	200	100	100
240	240	240	240
–	–	4 100	4 100
–	–	450	450
3 360	–	3 360	–
182	–	182	–
168	–	168	–
150	–	150	–
980	–	980	–
238	–	238	–
1 200	–	1 200	–
400	400	400	400
(14) 4 200	(14) 4 200	(14) 4 200	(14) 4 200
2 000	2 000	2 000	2 000
500	500	500	500
1 300	1 300	1 300	1 300
22 925	16 647	26 365	20 087
82	59	94	72

TABLE C. Costs of buildings and works for treble-section lower-stage schools

		3 + 0	
Sections:	lower + upper	3 + 0	
Classes:	lower + upper	12 + 0	
Places:	lower + upper	420 + 0	
Sex:		Boys	
Item	Building or works	Boarding	Day
		£	£
1	Office	1 110	1 110
2	Staff room	(× 19) 1 311	(× 19) 1 311
3	Library	3 116	3 116
4	Class-rooms	(9) 9 000	(9) 9 000
5	Class-room stores	900	900
6	Geography room	–	–
7	Art and craft room	3 240	3 240
8	Laboratories	8 430	8 430
9	Home economics combined practical room	–	–
10	Home economics model house	–	–
11	Home economics extra practical room	–	–
12	Workshops	(2 + 2) 5 220	(2 + 2) 5 220
13	Technical drawing room	2 906	2 906
14	W.C.s. (day school)	–	1 008
15	Class-room W.C.s.	504	–
16	Dormitories	45 360	–
17	Laundry drying area	3 087	–
18	Students' common-room	2 520	–
19	Sick bay	2 365	–
20	Matron's quarters	1 060	–
21	Dining hall	11 214	–
22	Kitchen		
24	Stores, maintenance of premises	550	550
25	Head's house	3 200	3 200
26	Teachers'/Bursar's houses	(20) 56 000	(20) 56 000
27	Subordinate staff houses	1 760	–
28	Water supply	4 500	3 250
29	Sewage	5 400	3 250
30	Electricity	1 250	500
31	Other site works	2 000	1 250
	TOTALS	175 103	104 241
Average (cost per place)		417	248

3 + 0 12 + 0 420 + 0 Girls		3 + 0 12 + 0 420 + 0 Mixed	
Boarding	Day	Boarding	Day
£	£	£	£
1 110	1 110	1 110	1 110
(× 19) 1 311	(× 19) 1 311	(× 19) 1 311	(× 19) 1 311
3 116	3 116	3 116	3 116
(9) 9 000	(9) 9 000	(9) 9 000	(9) 9 000
900	900	900	900
–	–	–	–
3 240	3 240	3 240	3 240
8 430	8 430	8 430	8 430
5 100	5 100	2 550	2 550
5 928	5 928	2 964	2 964
5 100	5 100	2 550	2 550
–	–	(1 + 1) 2 610	(1 + 1) 2 610
–	–	1 453	1 453
–	1 008	–	1 008
504	–	504	–
45 360	–	45 360	–
3 087	–	3 087	–
2 520	–	2 520	–
2 365	–	2 365	–
1 060	–	1 060	–
11 214	–	11 214	–
550	550	550	550
3 200	3 200	3 200	3 200
(20) 56 000	(20) 56 000	(20) 56 000	(20) 56 000
1 760	–	1 760	–
4 500	3 250	4 500	3 250
4 500	3 250	4 500	3 250
1 250	500	1 250	500
2 000	1 250	2 000	1 250
183 105	112 243	179 104	108 242
436	267	426	258

TABLE D. Costs of furniture and equipment for treble-section lower-stage schools

Sections: lower + upper — 3 + 0
Classes: lower + upper — 12 + 0
Places: lower + upper — 420 + 0
Sex: Boys

Item	Type of furniture or equipment	Boarding	Day
		£	£
1	Office	220	220
2	Staff room	(× 19) 57	(× 19) 57
3	Library:		
	Furniture and equipment	252	252
	Books	1 200	1 200
4	Class-rooms	(9) 1 710	(9) 1 710
6	Geography room	–	–
7	Art and craft rooms	900	900
8	Laboratories:		
	Gas installation	270	270
	Furniture	1 350	1 350
	Teaching equipment	1 800	1 800
9	Home economics combined practical room	–	–
10	Home economics model house	–	–
11	Home economics extra practical room	–	–
12	Workshops	8 200	8 200
13	Technical drawing room	900	900
16	Dormitories	5 040	–
18	Students' common-room	273	–
19	Sick bay	252	–
20	Matron's quarters	150	–
21	Dining hall	1 470	–
22	Kitchen:		
	Furniture and equipment	357	–
	Cooking equipment	1 500	–
25	Head's house	400	400
26	Teachers'/Bursar's houses	(20) 6 000	(20) 6 000
32	Initial textbooks	3 000	3 000
33	Other initial teaching equipment	500	500
34	Vehicle	1 300	1 300
	TOTALS	37 101	28 059
	Average (cost per place)	88	67

3 + 0 12 + 0 420 + 0 Girls		3 + 0 12 + 0 420 + 0 Mixed	
Boarding	Day	Boarding	Day
£	£	£	£
220	220	220	220
(× 19) 57	(× 19) 57	(× 19) 57	(× 19) 57
252	252	252	252
1 200	1 200	1 200	1 200
(9) 1 710	(9) 1 710	(9) 1 710	(9) 1 710
–	–	–	–
900	900	900	900
270	270	270	270
1 350	1 350	1 350	1 350
1 800	1 800	1 800	1 800
2 020	2 020	1 010	1 010
200	200	100	100
480	480	240	240
–	–	4 100	4 100
–	–	450	450
5 040	–	5 040	–
273	–	273	–
252	–	252	–
150	–	150	–
1 470	–	1 470	–
357	–	357	–
1 500	–	1 500	–
400	400	400	400
(20) 6 000	(20) 6 000	(20) 6 000	(20) 6 000
3 000	3 000	3 000	3 000
500	500	500	500
1 300	1 300	1 300	1 300
30 701	21 659	33 901	24 859
73	52	81	59

TABLE E. Costs of buildings and works for some integrated lower- and upper-stage schools

Item	Building or works	Boarding	Day
	Sections: lower + upper	2 + 2 (1 arts, 1 science)	
	Classes: lower + upper	8 + 4	
	Places: lower + upper	280 + 120	
	Sex:	Mixed	
		£	£
1	Office	1 110	1 110
2	Staff room	(× 19) 1 311	(× 19) 1 311
3	Library	3 336	3 336
4	Class-rooms	(9) 9 000	(9) 9 000
5	Class-room stores	900	900
6	Geography room	1 620	1 620
7	Art and craft room	1 620	1 620
8	Laboratories	8 430	8 430
9	Home economics combined practical room	2 550	2 550
10	Home economics model house	2 964	2 964
11	Home economics extra practical room	2 550	2 550
12	Workshops	(1 + 1) 2 610	(1 + 1) 2 610
13	Technical drawing room	1 453	1 453
14	W.C.s. (day school)	–	960
15	Class-room W.C.s.	480	–
16	Dormitories	43 200	–
17	Laundry drying area	2 940	–
18	Students' common-room	2 400	–
19	Sick bay	2 252	–
20	Matron's quarters	1 060	–
21	Dining hall	10 680	–
22	Kitchen		
24	Stores, maintenance of premises	550	550
25	Head's house	3 200	3 200
26	Teachers'/Bursar's houses	(20) 56 000	(20) 56 000
27	Subordinate staff houses	1 760	–
28	Water supply	4 500	3 250
29	Sewage	4 500	3 250
30	Electricity	1 250	500
31	Other site works	2 000	1 250
	TOTALS	176 226	108 414
	Average (cost per place)	441	271

3 + 2 (1 arts, 1 science) 12 + 4 420 + 120 Mixed		3 + 3 (1 arts, 2 science) 12 + 6 420 + 180 Mixed	
Boarding	Day	Boarding	Day
£	£	£	£
1 110	1 110	1 110	1 110
(× 25) 1 725	(× 25) 1 725	(× 28) 1 932	(× 28) 1 932
4 374	4 374	5 002	5 002
(12) 12 000	(12) 12 000	(14) 14 000	(14) 14 000
1 200	1 200	1 400	1 400
1 620	1 620	1 620	1 620
3 240	3 240	3 240	3 240
11 240	11 240	14 050	14 050
2 550	2 550	2 550	2 550
2 964	2 964	2 964	2 964
2 550	2 550	2 550	2 550
(1+1) 2 610	(1 + 1) 2 610	(1 + 1) 2 610	(1 + 1) 2 610
1 453	1 453	1 453	1 453
–	1 296	–	1 440
648	–	720	–
58 320	–	64 800	–
3 969	–	4 410	–
3 240	–	3 600	–
3 040	–	3 378	–
1 060	–	1 060	–
14 418	–	16 020	–
550	550	550	550
3 200	3 200	3 200	3 200
(26) 72 800	(26) 72 800	(29) 81 200	(29) 81 200
1 760	–	1 760	–
5 000	3 500	5 500	3 750
5 000	3 500	5 500	3 750
1 750	750	1 750	750
2 500	1 500	2 500	1 500
225 891	135 732	250 429	150 621
418	251	417	251

TABLE F. Costs of furniture and equipment for some integrated lower- and upper-stage schools

Sections:	lower + upper	2 + 2	
Classes:	lower + upper	8 + 4	
Places:	lower + upper	280 + 120	
Sex:		Mixed	
Item	**Type of furniture or equipment**	**Boarding**	**Day**
		£	£
1	Office	220	220
2	Staff room	(× 19) 57	(× 19) 57
3	Library:		
	Furniture and equipment	312	312
	Books	1 600	1 600
4	Class-rooms	(9) 1 710	(9) 1 710
6	Geography room	450	450
7	Art and craft rooms	450	450
8	Laboratories:		
	Gas installation	270	270
	Furniture	1 350	1 350
	Teaching equipment	5 100	5 100
9	Home economics combined practical room	1 010	1 010
10	Home economics model house	100	100
11	Home economics extra practical room	240	240
12	Workshops	4 100	4 100
13	Technical drawing room	450	450
16	Dormitories	4 800	–
18	Students' common-room	260	–
19	Sick bay	240	–
20	Matron's quarters	150	–
21	Dining hall	1 400	–
22	Kitchen:		
	Furniture and equipment	340	–
	Cooking equipment	1 500	–
25	Head's house	400	400
26	Teachers'/Bursar's houses	(20) 6 000	(20) 6 000
32	Initial textbooks	3 200	3 200
33	Other initial teaching equipment	500	500
34	Vehicle	1 300	1 300
	TOTALS	37 509	28 819
Average (cost per place)		94	72

3 + 2 (1 arts, 1 science) 12 + 4 420 + 120 Mixed		3 + 3 (1 arts, 2 science) 12 + 6 420 + 180 Mixed	
Boarding	Day	Boarding	Day
£	£	£	£
220	220	220	220
(× 25) 75	(× 25) 75	(× 28) 84	(× 28) 84
396	396	468	468
2 000	2 000	2 400	2 400
(12) 2 280	(12) 2 280	(14) 2 660	(14) 2 660
450	450	450	450
900	900	900	900
540	540	540	540
1 800	1 800	2 250	2 250
5 100	5 100	5 100	5 100
1 010	1 010	1 010	1 010
100	100	100	100
240	240	240	240
4 100	4 100	4 100	4 100
450	450	450	450
6 480	–	7 200	–
351	–	390	–
324	–	360	–
150	–	150	–
1 890	–	2 100	–
459	–	510	–
1 800	–	2 000	–
400	400	400	400
(26) 7 800	(26) 7 800	(29) 8 700	(29) 8 700
4 200	4 200	4 800	4 800
500	500	500	500
1 300	1 300	1 300	1 300
45 315	33 861	49 382	36 672
84	63	82	61

Suggestions for further reading

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